

**REMARKS/ARGUMENTS**

Claims 1-29 now stand before the Examiner. Claims 1-3, 11, 15, and 23-25 have been amended. Claims 21 and 22 have been cancelled. No new claims have been added.

Applicant submits that the amendments to the claims are fully supported in the specification as filed and add no new matter.

The Office Action, mailed on August 11, 2004, rejected claims 1-23 and 25-29 and objected to claim 24. Claims 1-22 and 25-29 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Claim 23 was provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 26 of copending Application No. 09/990,640. Claims 1, 2, 5-7, 11, 12, 21, and 22 were rejected under 35 U.S.C. § 102(b) as being anticipated by Matsudaira (US 4,670,355). Claim 23 was rejected under 35 U.S.C. § 102(b) as being anticipated by Iwamoto, et al. (US 4,976,806).

Claim 24 was objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Examiner Interview**

Applicant thanks Examiner McNeil for taking the time on October 7, 2004 for a telephonic interview to discuss the merits of the presently pending claims in view of the references of record. The Section 112, first paragraph, rejections and the double patenting rejections were discussed in view of the pending claims. The Matsudaira reference and the Iwamoto reference were discussed in view of the pending claims. The possible change of the tantalum oxide

concentration to a range up to about 50 mol% was discussed regarding the independent claims. In addition, the possible deletion of the limitation of elimination of the presence of CaO was discussed in relation to the independent claims. The possible inclusion of the element of a silicon nitride or silicon carbide substrate into the independent claims was discussed in view of the lack of this structural element in the Matsudaira reference. The relative weight percentages and molar percentages disclosed in the Iwamoto reference in relation to the claimed weight percentages and molar percentages were discussed. The interview was helpful in providing a better understanding of the Examiner's position.

35 U.S.C. § 112, first paragraph

Applicant has amended Claims 1, 11, 15, and 25 to address issues mentioned by the Examiner. As amended, Claims 1, 11, 15, and 25 claim a range of tantalum oxide that at least about 50 mol%. Support for these amendments is to be found, for example, in the original application at lines 11-13 of paragraph [0013] ("the Ta<sub>2</sub>O<sub>5</sub> coating can incorporate up to 50 mol % Al<sub>2</sub>O<sub>3</sub> so that the majority of the phase in the coating becomes AlTaO<sub>4</sub> and the CTE match very well with the substrate.") and at lines 1-4 of paragraph [0014] ("A variety of ceramic processing methods can be used to introduce and incorporate the additives into Ta<sub>2</sub>O<sub>5</sub>. As shown by the method 100 in Figure 1, the process may start with a commercially available Ta<sub>2</sub>O<sub>5</sub> powder (step 102), to which a desirable amount (about 1 – 50 mol.%) of additives are added (step 105)."). As amended, Claims 1, 11, and 15 now lack the limitation of "... a presence of CaO is eliminated."

Obviousness type double patenting

Applicant has amended claim 23 to remove the element aluminum from the Markush group. Applicant respectfully submits that claim 23 is in allowable form.

35 U.S.C. § 102

Matsudaira (US 4,670,355)

The Matsudaira reference discloses an electroluminescent display panel with a transparent glass substrate and a layer including Ta<sub>2</sub>O<sub>5</sub> and Al<sub>2</sub>O<sub>3</sub>. (col. 2, lines 21-26, 51-54). The dielectric layer should be in intimate contact with an adjacent layer. (col. 1, lines 36-38).

Claim 1, as amended, recites "a substrate formed of silicon nitride or silicon carbide." The Matsudaira disclosure does not teach a substrate of silicon nitride or silicon carbide. Thus, Applicant submits that independent Claim 1, as amended, along with its dependent Claims 2, 5, 6, and 7 are not anticipated by the Matsudaira reference.

Support for the subject matter of "a substrate formed of silicon nitride or silicon carbide" is to be found, for example, in the original application at lines 7-10 of paragraph [0021] ("A coating of the above composition was then applied to coupons of silicon nitride and SiC-SiC composite substrates by an air-plasma spraying process. The silicon nitride coupons had an as-sintered surface on which the plasma coating was applied."), at lines 18-19 of paragraph [0021] ("The silicon nitride coupons coated with Al<sub>2</sub>O<sub>3</sub> . . ."), at lines 6-7 of paragraph [0022] ("The composition was applied to coupons of silicon nitride and SiC-SiC composite substrate by air-plasma spray process. The silicon nitride coupons . . ."), at line 17 of paragraph [0022] ("The silicon nitride samples coated with La<sub>2</sub>O<sub>3</sub> . . ."), at line 1 of paragraph [0023] ("The SiC-SiC coupon coating . . ."), at lines 4-5 of paragraph [0023] ("Silicon nitride coating coupons having coating

compositions of 10 mol%  $\text{Al}_2\text{O}_3$ -90 mol%  $\text{Ta}_2\text{O}_5$  . . .”), at line 4 of paragraph [0025] (“Substrates of silicon nitride and SiC-SiC composites . . .”), at lines 10-11 of paragraph [0025] (“The coated silicon nitride and SiC-SiC parts having a 50 micron thick coating . . .”), at lines 1-2 of original claim 4 (“The component according to Claim 1, wherein the substrate is one of a silicon nitride substrate and a silicon carbide substrate.”), at line 2 of original claim 11 (“a substrate formed of silicon nitride or silicon carbide”), and at lines 1-2 of original claim 15 (“A method of protecting a silicon nitride ( $\text{Si}_3\text{N}_4$ ) or silicon carbide (SiC) substrate . . .”).

Claims 21 and 22 have been cancelled.

Additionally, Claim 1 recites “an additive for suppressing transformation from beta  $\text{Ta}_2\text{O}_5$  to alpha  $\text{Ta}_2\text{O}_5$ .” Support for the addition of this subject matter may be found in the original application at lines 3-4 of paragraph [0006] (“an additive for suppressing transformation from beta  $\text{Ta}_2\text{O}_5$  to alpha  $\text{Ta}_2\text{O}_5$ .”), at lines 2-3 of the Abstract (“The protective coating includes tantalum oxide ( $\text{Ta}_2\text{O}_5$ ) and an additive for suppressing transformation from beta  $\text{Ta}_2\text{O}_5$  to alpha  $\text{Ta}_2\text{O}_5$ .”), and at lines 4-5 of original claim 1 (“an additive for suppressing transformation from beta  $\text{Ta}_2\text{O}_5$  to alpha  $\text{Ta}_2\text{O}_5$ .”). The Matsudaira disclosure does not teach such an additive. Claim 1 also recites a coating that is “substantially crystalline.” The coating in the Matsudaira disclosure is amorphous (“It has been found that the first dielectric film 16 is an amorphous film of the mixture of tantalum oxide ( $\text{Ta}_x\text{O}_y$ ) and aluminum oxide ( $\text{Al}_u\text{O}_y$ )” col. 3, lines 45-47; “As a result, the second dielectric film 17 is an amorphous film comprising tantalum oxide ( $\text{Ta}_x\text{O}_y$ ) and aluminum oxide ( $\text{Al}_u\text{O}_y$ )” col. 3, lines 60-62; “The first and the second dielectric films 16 and 17 are dense and tenaciously adhere to the electroluminescent layer 14 and the first and the second electrodes 11 and 12 because they are amorphous.” col. 3, lines 67-68 through col. 4, lines 1-2). Thus, since Matsudaira does not disclose a

substantially crystalline protective coating, Claim 1 is not anticipated by Matsudaira.

Claim 11 claims "a substrate formed of silicon nitride or silicon carbide." As mentioned above, the Matsudaira reference does not disclose this element. Thus, Applicant respectfully submits that Claim 11 is not anticipated by Matsudaira. Additionally, because dependent Claims 12-14 depend upon independent Claim 11, Applicant respectfully submits that Claims 12-14 are not anticipated by Matsudaira.

Claim 15 is drawn to "A method of protecting a silicon nitride ( $\text{Si}_3\text{N}_4$ ) or silicon carbide ( $\text{SiC}$ ) substrate." As mentioned above, Matsudaira does not disclose subject matter relating to silicon nitride or silicon carbide. Thus, Applicant respectfully submits that Claim 15 is not anticipated by Matsudaira. Additionally, because dependent Claims 16-20 depend upon independent Claim 15, Applicant respectfully submits that Claims 16-20 are not anticipated by Matsudaira.

Claim 23, as amended, recites, "a substrate formed of silicon nitride or silicon carbide." As mentioned above, Matsudaira does not teach such a substrate. Thus, Applicant respectfully submits that Claim 23 is not anticipated by Matsudaira. Additionally, because dependent Claim 24 depends upon independent Claim 23, Applicant respectfully submits that Claim 24 is not anticipated by Matsudaira.

Furthermore, Applicant submits that each of claims 1, 11, 15, 23, and the respective dependent claims define an invention which is unobvious over Matsudaira.

Iwamoto (US 4,976,806)

The Iwamoto reference discloses a bonding composition for bonding ceramics to metal, or ceramics to other ceramics. (col. 1, lines 7-14 and col. 5, lines 36-40). The Iwamoto bonding composition requires CaO as an ingredient. (col. 3, lines 4-8, and col. 10, lines 21-24, 32-34).

Claim 23, as amended, recites "La<sub>2</sub>O<sub>3</sub> being in the range of about 1-10 mol% before application of the coating." Iwamoto does not claim La<sub>2</sub>O<sub>3</sub> within such a range. Iwamoto discloses using tantalum oxide in the range of 5-60 wt.%. This corresponds to molar percentages of 1.2 mol% to 25.7 mol%. Assuming a binary composition, then Iwamoto would entail a La<sub>2</sub>O<sub>3</sub> amount of 74.3 mol% to 98.8 mol%. Because the molar% range recited in Claim 23 is not within the range disclosed by Iwamoto, Applicant respectfully submits that Claim 23 is not anticipated by Iwamoto.

Furthermore, Applicant submits that claim 23 defines an invention that is unobvious over Iwamoto.

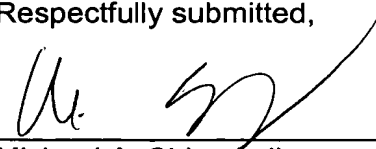
### CONCLUSION

Reconsideration and withdrawal of the Office Action with respect to Claims 1-29 is requested.

In the event the examiner wishes to discuss any aspect of this response, please contact the attorney at the telephone number identified below.

Respectfully submitted,

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